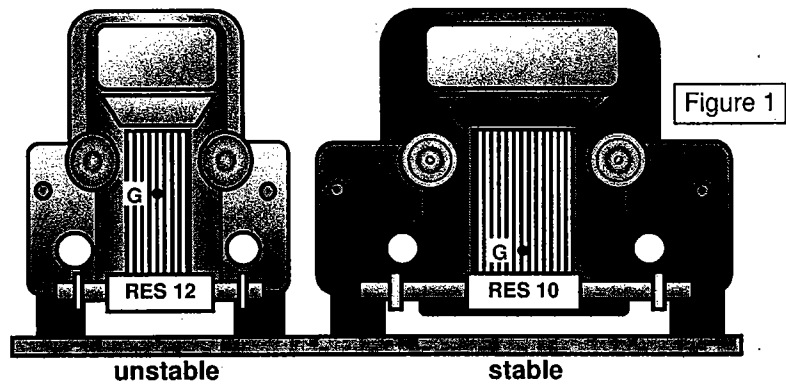


## Stability

The position of the centre of gravity of an object affects its stability. The lower the centre of mass (G) is, the more stable the object. The higher it is the more likely the object is to topple over if it is pushed. Racing cars have really low centres of mass so that they can corner rapidly without turning over.

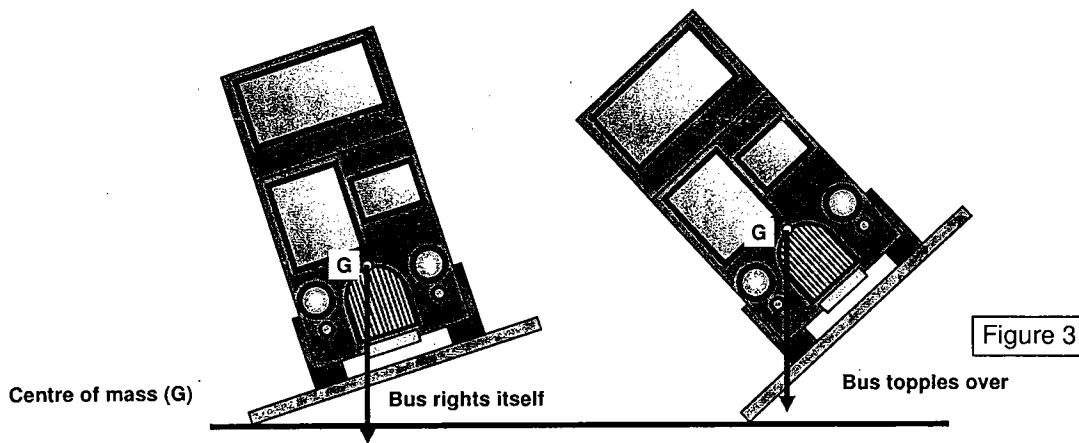
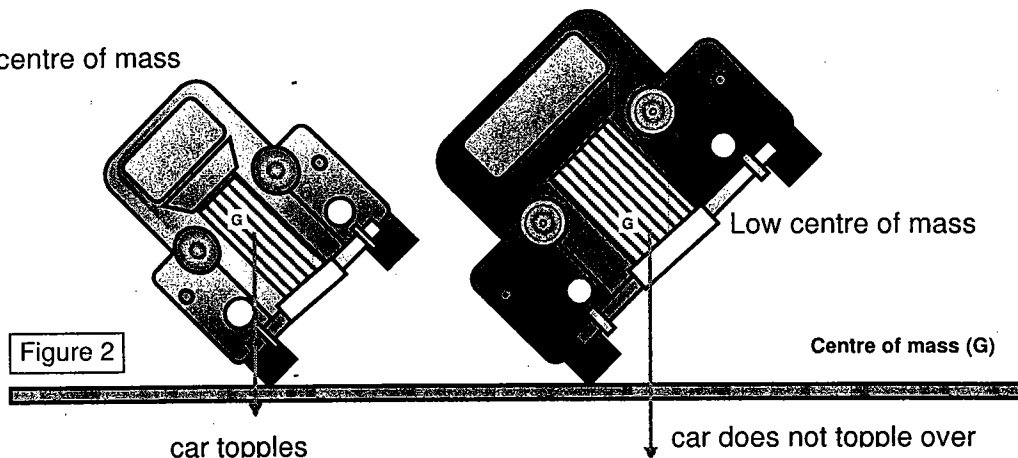


Increasing the area of the base will also increase the stability of an object, the bigger the area the more stable the object. Rugby players will stand with their feet well apart if they are standing and expect to be tackled.

If an object is tilted it will topple over if the vertical line through its centre of mass falls outside its base.

The following diagrams show that the position of the centre of mass is important in toppling. The higher the centre of mass the more likely an object is to topple over if it is tilted.

High centre of mass



Buses must be tested to see that they do not tip over even if the bottom deck is empty and the top deck is full of people.